

nih record



ABOVE • NIDCR director Dr. Lawrence Tabak (l) checks beard grown by NIH director Dr. Elias Zerhouni as part of CFC wager.

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Up on the Farm

Exploring the NIH Animal Center, Our Second Campus

By Sarah Schmelling

You've been to Executive Plaza. You know about NIEHS in North Carolina, about NIH buildings in Baltimore and Frederick, even some structures within the broad category of "Washington Metropolitan Area Leased Facilities." What you may not know is that about 30 miles northwest of the main campus, on a 509-acre stretch of rolling farmland, lies the NIH Animal Center at Poolesville.

It's one of NIH's "best-kept secrets," says Dr. Douglas Powell, chief of the Poolesville veterinary medicine section. One can see why the NIHAC, known as "the farm," is not so well-known. On a mid-winter morning, it's a long drive on winding, frosty country roads to reach the center at a distant edge of Montgomery County. And though it's just a few miles from the Potomac River and not even far, Powell says, from Dulles International Airport, it's a quiet location.

SEE **ANIMAL CENTER**, PAGE 6 *Contractor Blair Casey feeds a pig on the farm.*



Bridging the Licensing Gap

New Site Eases Industry Search for Rare Disease Technologies

By Sarah Schmelling

Science meet Industry, Industry meet Science. This pairing—of NIH- and FDA-developed technologies and the companies interested in licensing them—would seem to be a perfect match. But it's always been difficult for companies, from small biotech firms to large pharmaceutical companies, to search among the myriad technologies available for licensing to find one they could potentially use to create a new product.

This is why NIH's Office of Technology Transfer (OTT) recently came up with the idea of creating web sites that list all available technologies in specific medical areas. That way, companies can visit one site, see all technologies ready to be licensed and perhaps find one they can develop into a product that assists in diagnosis, treatment or prevention of a disease. OTT started last year with a web module focused on neglected diseases and, in January,

SEE **RARE DISEASE SITE**, PAGE 4

Campaign a 'Slam Dunk'

2006 CFC Sets Record for Donations, Participation

The 2006 NIH Combined Federal Campaign recently came to a close having raised a record \$2.1 million for charity, surpassing the \$1.6 million goal. This year's campaign also broke a record for participation with a greater percentage of employees giving to the CFC than ever before.

In 2005, NIH'ers contributed just over \$2 million to the annual charity drive. Last fall, in order to spur the campaign to new heights, NIH director Dr. Elias Zerhouni pledged to grow a beard if employees topped that total.

What emerged on his cheeks in early January was a silvery stubble that he said "felt like a Brillo pad. It was hard on my wife." Growing a beard, he said, "was difficult. I had never done it before. But it was fun. I think it's a really tangible way to say thank you to the employees. I think Larry [Tabak, NIDCR director, whose institute led the CFC charge this year] did a fantastic job."

SEE **CFC**, PAGE 8



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briefs

Be Part of Take Your Child to Work Day, Apr. 26

This year NIH celebrates its 13th Take Your Child to Work Day on Thursday, Apr. 26. From 9 a.m. to 4 p.m., institutes and centers will host educational and fun activities designed to let children (ages 8-15) experience the world of biomedical research.

If 2007 is anything like the last 3 years, we can expect more than 1,500 children to participate. Activities will be hosted at several locations on campus. You can help by identifying events that will offer children a learning experience in the occupations at NIH. These should introduce children to the vital roles their parents play in the NIH workforce and to careers the children might not have envisioned. The planning committee is seeking activity sponsors. We need many of them throughout the day and across NIH facilities—in labs, conference rooms, and offices. To sponsor an activity or exhibit, contact the planning committee.

The committee is also asking for NIH giveaways (pens, cups, brochures, pencils, water bottles, etc.) for inclusion in registration goody bags to be handed out at the sign-in for the event.

Not up to sponsoring your own activity, but still want to see children engaged in opportunities to learn about career possibilities? How about helping plan and conduct the event? The committee can use your help anytime between now and event day. Contact Darlene Pearson, committee chair, (301) 496-6301 voice, (301) 496-9755 TTY, or Gary Morin, cochair, (301) 496-4628 voice, (301) 451-9326 TTY; both can be reached by email at Take-Your-Child-To-Work@nih.gov. Visit <http://takeyourchildtowork.nih.gov> for more information and registration. The committee plans to open registration in mid-April.

Individuals who need sign language interpreters and/or reasonable accommodation to participate should contact Carlton Coleman, (301) 496-2906 or (301) 451-2290 TTY, (800) 877-8339 Federal Relay, or ColemanC@od.nih.gov. Requests should be made at least 5 days before the event.

Black History Program Set, Feb. 28

NIH's annual salute to Black History Month will be held on Wednesday, Feb. 28 in Natcher auditorium from noon to 1 p.m. The 2007 theme is "Telling Our Story: Across the Generations African Americans' Service to Country." The keynote speaker will be Lt. Col. Hiram Mann (ret.), a Tuskegee airman. For more information about the program, call Kay Johnson Graham, (301) 451-0859. For reasonable accommodation, call Carlton Coleman, (301) 496-2906.

STEP Forum on Aging Well, Mar. 6

The staff training in extramural programs (STEP) committee will present a Science for All forum on the topic, "Aging Well: It's Better Than the Alternatives," on Tuesday, Mar. 6 from 8:30 a.m. to 12:30 p.m. in Lister Hill Auditorium, Bldg. 38A.

We are all getting older. The question is, how do we best play the cards we are dealt? What is more influential in determining how we age—our bodies' physiological and structural changes or how we view ourselves and our quality of life? Need we assume that chronic physical or mental impairments will negatively affect our future or can we actively improve our prospects for healthy living even as we age? Join us for a discussion about current thinking on aging and strategies for health and happiness as we get older.

Science Fair Judges Needed

ScienceMONTGOMERY, the volunteer organization sponsoring Montgomery County's annual junior-senior science fair, invites NIH staff to sign up to judge on Saturday, Mar. 17 between 8 a.m. and 5 p.m. at the Montgomery County Agricultural Center/Fairgrounds in Gaithersburg. For judging categories, other details and to sign up, visit www.ScienceMONTGOMERY.org. The fair presents the top projects of the county's middle and high school students.

NIH Sailing Association Open House

The NIH Sailing Association invites everyone to its open house on Thursday, Mar. 1 from 5 to 8 p.m. at the FAES House on the corner of Old Georgetown Rd. and Cedar Ln. Would you like to learn to sail? Or to be part of a group filled with skilled sailing instructors, enthusiasts and boat owners? NIHSA offers instruction, sailboats for charter, racing, cruises, parties and fun. The open house costs \$5 at the door, which includes pizza and sodas. There is a cash bar for beer and wine. For more information visit www.recgov.org/sail.

nih record

Garcia Named NIDCR Deputy Director

Dr. Isabel Garcia has been appointed deputy director of NIDCR. "I am delighted to have Dr. Garcia as the institute's new deputy director," said NIDCR director Dr. Lawrence Tabak. "She brings to the job a wide range of experience in dental public health, research and administration. Dr. Garcia also has a wealth of knowledge about NIDCR and NIH research issues, gained over 12 years working for our institute. Her experience and unique perspective will serve NIDCR well."



For the past 3 years, as director of NIDCR's Office of Science Policy and Analysis, Garcia has served as principal advisor to Tabak and other members of the executive staff on science policy, health policy and legislative matters. She has managed the institute's scientific planning, evaluation, coding and reporting activities. Garcia led development of the current NIDCR strategic plan and the institute's plan for eliminating health disparities. A captain in the Commissioned Corps, she is also director of the dental public health residency program at NIDCR.

"I am honored to have been selected as NIDCR's new deputy director," she said. "The institute has a distinguished history of discovery and innovation and I feel fortunate to be part of its leadership. I look forward to working with my colleagues, our grantees and our many partners within and outside dentistry who are all so key to our continued success."


Since joining NIDCR in 1995 as a special assistant for science transfer, Garcia has served as the institute's liaison to professional organizations, various government entities and Congress on oral health research issues. She directed activities to promote science-based practice, developed science transfer activities for clinicians and led the development of a curriculum supplement on oral health science for use by elementary school teachers nationwide.

Before joining NIDCR, Garcia was a health scientist administrator at the Agency for Healthcare Research and Quality, where she managed research on health services and primary care. Prior to her PHS career, she held local and state health management positions, including county health director for the Virginia division of dental health and director of dental research and evaluation in the Ohio department of health.

During the early 1980s, she was in private practice in Richmond.

After graduating from the University of Mary Washington with a degree in chemistry, Garcia earned a doctor of dental science degree from the Medical College of Virginia and a master's degree in public health from the University of Michigan. She completed a residency in dental public health at Michigan and a fellowship in primary care policy in the PHS.

Active in many professional organizations, Garcia gained diplomate status in the American Board of Dental Public Health. In 2003, she was elected to a 6-year term as one of the board's directors.

She succeeds Dr. Dushanka Kleinman, who retired from government service to become associate dean for research and academic affairs, College of Health and Human Performance, University of Maryland. 

CSR Employees Receive the Center's Highest Awards for Innovation

Drs. George Chacko and Everett Sinnett received "Explorer Awards" for their innovative efforts at the Center for Scientific Review. "Their efforts will be felt throughout NIH," says CSR director Dr. Toni Scarpa, "because they will improve the quality of NIH peer reviews and reduce costs and staff burdens." Chacko and Sinnett share a \$10,000 prize, which was awarded recently.

Chacko was cited for his "exceptional leadership and commitment to the future of NIH peer review in developing and implementing the asynchronous electronic discussion platform." This online discussion platform allows reviewers to assess applications without having to travel or be constrained by time zones. A total of 38 study sections have used this new platform, which increases the pool of available reviewers and eliminates travel expenses. CSR plans to use this and other electronic platforms for about 10 percent of its reviews in 2007.

Sinnett was cited for his "commitment to improving efficiency and reducing staff burdens." He developed a way to use existing computer systems and data to streamline the reporting of reviewer reimbursement information. Recent reimbursement changes meant that staff had to mark up and sift through multi-page documentation to process reimbursements. Sinnett's solution has simplified and (largely) automated the task for everyone. The NIH reimbursement process now is significantly faster and carries a reduced risk of error.

"CSR faces many challenges," says Scarpa, "so it's encouraging to see, and important to recognize, innovation coming from our talented employees."



CSR director Dr. Toni Scarpa (c) congratulates Explorer Award winners Dr. Everett Sinnett (l) and Dr. George Chacko.

RARE DISEASE SITE

CONTINUED FROM PAGE 1

launched a much larger site in conjunction with the Office of Rare Diseases (ORD) with support from the National Human Genome Research Institute.

"A lot of the work that goes on at NIH is related to rare diseases and conditions, things that industry on its own initiative would probably not be researching," said Dr. Bonny Harbinger, OTT deputy director. "So we decided that it

made sense to, in one spot, collect all of the technologies we have."

On the site, www.ott.nih.gov/rare-diseases, OTT and ORD have listed more than 500 technolo-

gies related to more than 100 rare diseases and conditions, giving companies just one place to visit. "They can search by disease, or they can look at all of the technologies. And it's easy," Harbinger said. "That's what's really critical, to make things easy for industry."

She explained that OTT has also invited non-profits outside of government—primarily academic institutions—to list their technologies on the site in an effort to provide the largest possible database of technologies. And with these groups—the University of California system alone expects to list numerous technologies—the site should eventually include thousands of technologies, said OTT director Dr. Mark Rohrbaugh.

Putting the current list together required the painstaking process of first finding all of the rare diseases—which number around 7,000 and are increasing daily—then matching the diseases to the technologies in the NIH/FDA portfolios and finally validating the selection of each technology. But Dr. Stephen Groft, director of ORD, said the effort was well worth it. "It was something that was desperately needed, because a good part of the pharmaceutical industry will not commit the resources to devel-

op products for rare diseases," he said. "And we had these technologies, but we didn't have a way of matching the new technologies with companies who might have an interest in developing them."

He commends OTT for the idea and for the speed in producing the site. "It's a good example of a collaborative effort when one NIH office develops a useful technology that can be utilized by another office of NIH that facilitates meeting the goals of both offices," he said. And he's excited about the site's potential, primarily because of how it could eventually lead to products used for the diagnosis and treatment of a rare disease, but also because it will allow individual scientists to see what others have done and possibly find ways of collaborating. "They could develop the next generation of discoveries or interventions...from linking their groups together."

So far, feedback on the site has been positive, Harbinger said. She explained that what OTT really wants is to see companies interested in licensing technologies start their search with NIH, "for them to always think, let's go to NIH first because they have so many things available, and it's organized so it's easy to find the person you want to talk to." She said companies have often complained in the past about how many mouse clicks or phone calls it has taken to get this kind of information. Now, the site helps in reducing "the barrier for companies to get access and move technologies forward," Rohrbaugh said. OTT plans to produce similar modules for other medical areas, starting by adding chronic diseases to the neglected diseases site.

OTT was created by NIH in 1989 to evaluate, protect, license and manage both NIH and FDA discoveries, inventions and other intellectual property. The office—among other responsibilities—oversees patent prosecution, negotiates licensing agreements and develops technology transfer policies. To date, about 25 products that include technologies from NIH or FDA have received FDA approval, Rohrbaugh said. One of the most recent products to reach the market is Merck-produced Gardasil, the human papillomavirus vaccine used to protect against cervical cancer. The underlying technology for the vaccine originated at NCI (see sidebar).

To see a product like this reach the marketplace for a rare disease is the goal of the new module, and both OTT and ORD are doing all they can to get the word out about it. But for now, the main thing they can do is sit back—like matchmakers—and watch for any connections



Helping launch the new rare diseases web site are (from l) OTT director Dr. Mark Rohrbaugh, OTT deputy director Dr. Bonny Harbinger and ORD director Dr. Stephen Groft.

to be made. “We just have to wait to see where the link-ups happen,” Groft said. “You have to watch and monitor, and perhaps contact the investigator a year or two down the road to see what the impact is and whether the program ever met with success.”

However long it takes for the benefits of the site to be seen, it’s great to know this kind of tool is readily available, Groft explained. “With the costs of product discovery and development

increasing tremendously, many times rare diseases don’t receive extensive focus,” he added. “Whatever we can do to facilitate the transfer of information about the availability of new technologies, and perhaps generate the interest for a company to license them, it will always be useful. With so many rare diseases that do not have treatments, there certainly is a need for new discoveries of diagnostics and interventions.” ①

From Lab to Market: The HPV Vaccine

Perhaps no other recent product on the market demonstrates successful health care technology transfer better than the human papillomavirus (HPV) vaccine, Gardasil, produced by Merck & Co. and approved by the FDA in June 2006. Based largely on technology developed at NIH, the vaccine works to prevent four types of the sexually transmitted HPV that together cause 70 percent of all cervical cancer and 90 percent of genital warts.

Dr. Douglas Lowy, chief of NCI’s Laboratory of Cellular Oncology, who, with his colleagues, developed this underlying technology, recently told the story of the HPV vaccine in the second annual Philip S. Chen, Jr. Distinguished Lecture on Innovation and Technology Transfer.

In a lecture titled, “The Science, Technology and Promise of Preventive HPV Vaccines,” Lowy described, in detail, the more than 20 years of research he conducted on HPV with his colleague Dr. John Schiller.

It’s a “heroic” story about the effort to fight cervical cancer, the second most deadly cancer for women worldwide, said NIH director Dr. Elias Zerhouni in an introduction to the speech. He noted that he has talked about the vaccine’s creation to Congress and with the President on his recent visit to NIH. How researchers took the technology “from the lab to the marketplace is a journey we can learn from,” Zerhouni said.

Lowy explained that at the outset of their vaccine research, “it’s amazing how poor our qualifications were” to work on this technology. He said they had no experience in vaccines, immunology, translational research or papillomavirus structural proteins and virus structure. But they had studied papillomavirus biology, and that was the start.

Their key finding was that the outer coat protein of the virus, called L1, could “self-assemble” into non-infectious, virus-like particles (VLPs) that resemble the shell of the actual virus. They learned that exposure to VLPs causes the immune system to produce protective antibodies. The vaccine triggers these antibodies, so if an individual is exposed to the virus after having the vaccine, the antibodies bind to the L1 protein coat and prevent the virus from infecting cells.

Lowy discussed the high success rate of the vaccine and said it is most important to administer to girls between the ages of 11 and 13, prior to virus exposure. He stressed the fact that the vaccine is not effective against established cases of HPV or against some HPV strains, and therefore cervical cancer screening continues to be necessary.



NIH director Dr. Elias Zerhouni (l) presents an honorary poster to Dr. Douglas Lowy (c) for his lecture, named for Dr. Philip S. Chen, Jr. (r).



ANIMAL CENTER

CONTINUED FROM PAGE 1



Top:
The “farm” section of the Animal Center

Middle:
Dr. Douglas Powell, chief of the Poolesville veterinary medicine section

Bottom:
Dr. Julie Mattison, NIA staff scientist, discusses the calorie-restriction study.

Still, the facility—opened in 1965 and divided into a “north” section used by the Division of Veterinary Resources (DVR), Office of Research Services, and a “south” section, overseen by NICHD’s Research Animal Management Branch—has dozens of contractors, researchers and employees, three of whom live on site.

The primary function of Powell’s section is holding and quarantine, he explains, though there are some active protocols done there, including a long-term calorie-restriction study. The area he oversees houses several different species of monkeys, including rhesus macaques, pig-tailed and long-tailed macaques, African greens and squirrel monkeys. The north side also has a farm, with, among other animals, sheep, pigs, two Holstein steers and a “guard” llama, who some on the farm have dubbed “Monty.” (Llamas, it turns out, can be very good at protecting livestock from wild dogs and other animals). There are 40 workers on this side—10 government employees and the rest contractors. There is also a power plant with 17 staff members.

The monkeys in Powell’s section come from all over the world, he says. When they arrive, they are assigned an investigator, quarantined and then held or sent to another NIH facility, including buildings “downtown,” which is the way everyone at the center seems to refer to the Bethesda campus.

The monkeys on Powell’s side stay in a large facility, well-equipped for quarantining and holding processes such as medical treatment (the animals’ health is checked twice daily) and cage cleaning. The animals also have 18 indoor/

outdoor runs—large areas where they can move about—and a new habitat for monkeys opened in June 2005. All workers must wear protective gear near the monkeys and all of the area cleaning processes are complex and both time- and labor-intensive. It’s all necessary because of how important it is that the animals receive proper care, Powell says. He explains that staff members are on hand 7 days a week; workers will sleep on cots if bad weather could hamper their getting to work.

Dr. Julie Mattison, NIA staff scientist, oversees the calorie-restriction study under way at the Animal Center since 1987. The study follows a group of monkeys whose diet is restricted by 30 percent fewer calories than a control group and compares the effects of diet on aging. A calorie-restricted diet has been shown to extend life-span and reduce the incidence and age of onset of age-related diseases in several animal models. Mattison’s research has shown that calorie restriction, among other things, can decrease body weight and fat mass, improve glucoregulatory function and decrease blood pressure. The study has several collaborators, including NIH-funded projects in Oregon, Kentucky and Texas.



Working on the DVR side of the center are Joe Travis (l), contract supervisor, and Jeff Oden, assistant contract supervisor.



Facility manager Kristine Eckard dotes on Bob, a large hound mix.

This section also includes the actual farm of the “farm,” with buildings and areas designated for sheep that can move back and forth to pasture at will, as well as several pigs. In a separate area overseen by facility manager Kristine Eckard, some cats and dogs are currently being held. The animals have a great deal of human interaction (Eckard herself appears fond of all the animals, but seemed to dote especially on Bob, a large hound mix).

While the north side of the center focuses on holding and quarantine, the south side has many studies, including research undertaken by NICHD, NIAAA and NIMH. The Shared Facility has approximately 500 primates of different species (rhesus, cebus, marmosets and squirrel monkeys) utilized by the three institutes. Debra Lust, animal facilities manager for this area, is responsible for making sure the animals are secure and fed, that they have proper bedding and that all the building systems work. “I maintain the budget, I make sure all animal care is under control,” she says. There are 13 contract animal care staff, three government employees (“a behaviorist, a veterinarian and me,” Lust says) and a cadre of researchers whose numbers fluctuate, but are usually around 30.

NICHD has two main rhesus breeding groups in this section. The first colony has infants that are raised either by their mothers or in the nursery and are used in research that evaluates the impact of genetics and environment on behavior. The infants live with their mothers or in the nursery until they are 6 months old, at which time they are weaned and placed into a large juvenile group. At age 3 they are separated into same-sex groups and enrolled in various studies by NICHD, NIAAA and NIMH researchers. Once they reach maturity, some of the animals are placed into breeding groups to provide the next generation of research animals for the use of the three institutes.

The other, larger group of rhesus monkeys lives in a protected and secure 5-acre outdoor enclosure where they can roam free, climb trees and go indoors if they wish. Most of the time, Lust says, they love to be outside. “They have indoor-outdoor access, but they really spend a lot of



their time outside, even in the cold weather,” she notes. “They’ve been known to sit as high as they possibly can and catch snowflakes with their mouths.”

Dr. Stephen Suomi, head of NICHD’s Laboratory of Comparative Ethology, and his group study these animals, following their behavioral, cognitive and physiological development. “[The monkeys] do really well in that environment,” Lust explains.

Visitors to the center are relatively rare, and those who do make the trip and want to see the animals close up are required to have a recent tuberculosis skin test and measles titer to ensure they don’t bring either of those diseases to the animals, whose health and safety are top priorities.

But even if you’re never able to visit the farm, know that you have coworkers not far away who are just as dedicated to their demanding and rewarding work as those of us “downtown,” and who don’t necessarily miss the faster pace of Bethesda. “I prefer it,” says Lust of working on this large stretch of land, removed from the NIH hub. “I was a farm girl, so this is just fine with me.”



Clockwise from top: Numerous sheep live at the center. Facility veterinarian Dr. Lyn Colenda explains her work. A sign welcomes visitors to the NIH Animal Center in Poolesville. A center worker cleans the new monkey habitat.

PHOTOS: CARLA GARNETT

CFC

CONTINUED FROM PAGE 1

NIDCR hosted several basketball-themed events that drew hundreds of participants. NIH'ers enjoyed music, food, and basketball free-throw contests with the "Divas and Dudes" cheering squad on hand to root for contestants.

Free-throw winners received a basketball signed by Gary Williams, head coach of the University

of Maryland men's team, and an iPod for a deserving keyworker or contributor in their institute.

IC directors got into the act with their own free-throw competition that was held in front of Bldg. 1 and refereed by Zerhouni, who also participated.

"I didn't think I could throw anything in the basket and I did three," he noted. "I was so proud of myself."



Above:

Dr. Lawrence Tabak, NIDCR director, verifies the beard is real. NIH director Dr. Elias Zerhouni pledged to grow a beard if CFC contributions exceeded last year's total of just over \$2 million.

Right:

Gathered in the first floor lobby of Bldg. 1 to celebrate a "slam dunk" CFC campaign are (from l) Tabak, whose institute led this year's campaign; NIDCR's Carol Beasley; Zerhouni; NIDCR's Thomas Murphy; and CFC facilitator Kristin Oliver.



NIAMS at 20

Clinical Research

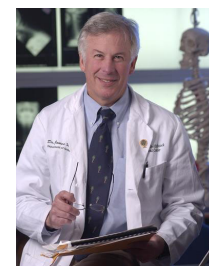
By Dr. Stephen Katz, NIAMS director

If one considers the research enterprise a spectrum of investigational types, basic science would reside at one end and clinical studies at the other, with translational science somewhere in the middle ground. NIAMS boasts a long line of clinical successes built on seminal studies of the past. Some examples involve:

- The development of better medications to treat arthritis
- The value of combination therapies for osteoporosis
- The effects of hormone therapy on bone health
- The use of immunosuppressive drugs against lupus nephritis
- The development of diagnostic methods and criteria for the blistering skin disease epidermolysis bullosa
- The usefulness of lumbar discectomy
- The discovery of a treatment for neonatal-onset multisystem inflammatory disease.

As these examples illustrate, clinical research at NIAMS has significantly improved public health and promises to enhance quality of life even more. The institute will continue its commitment to clinical research and to the training necessary to ensure a cadre of investigators who will conduct such studies in the future.

"Initiatives to improve health care start with well-designed clinical trials that inform our patients about evidence-based diagnostic/treatment options. When presented with a diagnosis in which there are equally effective treatments, patient preferences and values need to be incorporated into the treatment decision process for true informed consent or 'informed choice.'"



—Dr. James N. Weinstein, professor and chair of the department of orthopaedics, Dartmouth Medical School

milestones

NIDDK's Nossal Mourned, Was a Pioneer in DNA Replication

By Marcia Vital

Dr. Nancy Goldman Nossal, chief of the Laboratory of Molecular and Cellular Biology (LMCB), NIDDK, died Sept. 28, 2006, of cancer at age 69. During her 40-year career at NIH, she distinguished herself as a scientist, mentor and role model.

"Nancy was a dedicated scientist and a caring colleague whose courage was an inspiration to all of us," said Dr. Griffin Rodgers, acting director of NIDDK.

Nossal was an internationally recognized scientist and leader in the study of DNA replication. For almost 40 years, she investigated the proteins and enzymatic reactions required for DNA replication in the T4 bacteriophage system in *E. coli*. T4 phage, a virus that infects and replicates within bacteria, provided a simple and straightforward model in which to study DNA replication. Early in her career, Nossal contributed to the identification and characterization of the T4 phage proteins needed for DNA synthesis *in vitro*. Later studies revealed the functions of the T4 phage proteins at a molecular level and the similarity of the T4 phage system to more complex cell systems, contributing to the understanding of DNA replication in all organisms.

"Nancy was an outstanding and innovative scientist who made seminal discoveries on the mechanism of action of DNA polymerases and other DNA-active enzymes," said Dr. Michael Gottesman, NIH deputy director for intramural research.

One of her most valuable contributions to the field resulted from collaboration with Dr. Jack Griffith at the University of North Carolina, Chapel Hill. Using electron microscopy, they proved the existence of a trombone loop at a moving fork in the T4 replication system, confirming the "trombone model" first proposed by Dr. Bruce Alberts nearly 30 years earlier. The findings were presented in a paper published in the *Journal of Biological Chemistry* with the image of the trombone loop appearing on the journal's cover.

"Nancy was a revered scientific colleague and a friend," said Alberts at the University of California, San Francisco. "She and I worked on the same model DNA replication system for 30 years, and she was a major contributor to the working out of the details of this marvelous protein machine that has proved to be a model for all other replication systems."

Nossal joined NIH in 1964 as a postdoctoral fellow in NIDDK's Laboratory of Biochemistry and Metabolism (LBM). After a year studying nucleic acids, she switched her focus to DNA replication and spent another year in LBM.

"There weren't many communities at the NIH in the 1960s where women scientists were present and encouraged," said Nossal's husband of 47 years, Dr. Ralph Nossal, head of the Laboratory of Integrative and Medical Biophysics, NICHD.

"So I think a great deal of credit should be given to that community of scientists at the NIDDK."



After her postdoctoral fellowship, Nossal continued her work on DNA replication as an independent investigator in NIDDK's Laboratory of Biochemical Pharmacology (LBP). The chief, Dr. Herb Tabor, together with his wife and colleague, Celia, created a supportive and encouraging environment for a host of eager, young scientists, including Nossal and her close friend, Dr. Anthony Furano.

"Herb Tabor was very important to Nancy," said Furano, chief of the genomic structure and function

section in LMCB. "He had a consistency about him and was fascinated by the science. Nancy incorporated that into her approach to her science."

Nossal had a reputation for being a serious and conscientious scientist. "She was a hard worker and did her own laboratory work and was well respected in the community," said Tabor, chief of the pharmacology section in the Laboratory of Biochemistry and Genetics at NIDDK. "I always trusted her judgment, fairness and knowledge of the field."

Colleagues benefited from Nossal's passion for science and scientific integrity. "The one thing about Nancy is that she was always eager to share reagents, ideas and what she was thinking," said Dr. Jerard Hurwitz of the Sloan-Kettering Institute. "She was always giving of her time and was such an open person."

From 1966 through 1983, Nossal worked as a research chemist in the section on pharmacology in LBP. In 1983, she was named chief of the lab's section on nucleic acid biochemistry, a position she held until 1992, when she was named chief of LMCB. Nossal was elected to the American Academy of Arts and Sciences in 2005.

Nossal passed on her love for and careful approach to science to the students and fellows in her laboratory. "Nancy was very personable and very interested, but the way she really helped younger people was by showing them how to do things. She showed them how to think about science," said Dr. Charlie Jones, a staff scientist who served in Nossal's laboratory from June 1996 until her death. "All the people who came into her lab came out better scientists, better problem solvers and more confident in what they were doing."

Nossal was also able to balance work and family, serving as a role model for young scientists, especially women. "She was certainly someone who showed by example that you could have children and you could have a family and you could have science," said Dr. Deborah Hinton, chief of the gene expression and regulation section in LMCB and one of Nossal's early postdoctoral fellows. "I worked with Nancy for 24 years, and I told her I owe my career to her. She was the person who supported me and encouraged me to become a principal investigator."

Nossal enjoyed walking outdoors along the C&O Canal, baking cakes and cookies for family and friends and occasionally going to a concert or a play. But her passions were work and family, according to her husband. "She was a very loving person," said Nossal's son, Michael. "She taught me that everyone can make a contribution."

Nossal is survived by her husband; their three children: Susan Nossal of Madison, Wis., Steven Nossal of Reston, Va., and Michael Nossal of Washington, D.C.; her mother, Dorothy Goldman of Chicago; a sister; and a brother. 🍷

CIT Computer Classes

All courses are given without charge. For more information call (301) 594-6248 or consult the training program's home page at <http://training.cit.nih.gov>.

Sequencher - DNA Sequence Analysis Software	2/26
Sequencher - Identification & Reporting of SNPs	2/26
NIH Data Warehouse Query: Budget & Finance	2/27
Sequencher - Intro to DNA Sequence Analysis Software	2/27
NIH Data Warehouse Analyze: Human Resources	2/28
nVision Travel	2/28
nVision Supply and Replenishment Training	3/6, 8
Introduction to mAdb	3/6
Usability Basics	3/7
Statistical Analysis of Microarray Data	3/7-8
nVision: Technology Transfer	3/8
Phylogenetics	3/8-5/3
Windows XP Tips and Tricks	3/9

NIH Training Center Classes

The Training Center supports the development of NIH human resources through consultation and provides training, career development programs and other services designed to enhance organizational performance. For more information call (301) 496-6211 or visit <http://LearningSource.od.nih.gov>.

Human Capital Group Supervisory Skills Training	2/26-28
NIH Domestic Travel (NBS Travel System)	2/26-28, 3/7-9
Property Management Principles Refresher	2/27
NIH Foreign Travel (NBS Travel System)	3/1-2
Fellowship Payment System	3/1
Purchase Card Training	3/1, 2, 5
Basic Time and Attendance Using ITAS	3/5-6, 3/7-8
Delegated Acquisition Training Program	3/6-9
Consolidated Purchasing Through Contracts	3/6
Federal Supply Schedules	3/6
Buying from Businesses on the Open Market	3/7

FARE Abstract Competition for Fellows

The 14th annual Fellows Award for Research Excellence (FARE) 2008 competition will again provide recognition for outstanding scientific research performed by intramural postdoctoral fellows. FARE winners will each receive a \$1,000 travel award to use for attending and presenting their work at a scientific meeting. One-quarter of the fellows who apply will win an award.

FARE applicants must submit an abstract of their research, which will be evaluated anonymously on scientific merit, originality, experimental design and overall quality/presentation. The travel award must be used between Oct. 1, 2007, and Sept. 30, 2008.

The FARE 2008 competition is open to postdoctoral IRTAs, visiting fellows and other fellows with fewer than 5 years total postdoctoral experience in the NIH intramural research program. In addition, pre-IRTAs performing their doctoral dissertation research at NIH are also eligible to compete. Visiting fellows/scientists must not have been tenured at their home institute. Questions about eligibility should be addressed to your institute's scientific director. Fellows are asked to submit their application, including abstract, electronically from Mar. 12 through Apr. 16 via <http://felcom.nih.gov/FARE>. Winners will be announced by the end of September 2007. More information is available on the web site above. Questions may be addressed to your institute's fellows committee (Felcom) representative.

NIH-Duke Training in Clinical Research

Applications for the 2007-2008 NIH-Duke Training Program in Clinical Research are now available in the Clinical Center, Office of Clinical Research Training and Medical Education, Bldg. 10, Rm. B1L403.

The NIH-Duke program, implemented in 1998, is designed primarily for physicians and dentists who desire formal training in the quantitative and methodological principles of clinical research. The program is offered via videoconference at the CC. Academic credit earned by participating in this program may be applied toward satisfying the degree requirement for a master of health sciences in clinical research from Duke School of Medicine.

For more information about course work and tuition costs, visit <http://tpcr.mc.duke.edu>. Email queries about the program may be addressed to tpcr@mc.duke.edu. The deadline for applying is Mar. 1. Applicants who have been accepted into the program will be notified by July 2.



Neck Pain Study Needs Volunteers

Are you a healthy individual with or without neck pain? If you are between the ages of 18 and 65, you may be eligible to participate in an NIH neck pain study and receive a comprehensive cervical musculoskeletal examination without compensation. This is a 3-month natural history study, not a treatment study. For more information, email neckpainstudy@gmail.com or call (301) 496-4733. Refer to study 02-CC-0245.

Ovarian Function Study

Healthy women ages 18 through 25 are needed for ovarian function study. Compensation is provided. Call 1-866-444-2214 (TTY 1-866-411-1010). Refer to study 00-CH-0189.

Sleep and Obesity Study

Sleep and weight study for obese adults ages 22 to 50 who sleep fewer than 6 hours at night. Compensation is provided. Call 1-866-444-2214 (TTY 1-866-411-1010). Refer to study 06-DK-0036.

Child Allergy Study

NIH Pediatric Clinic offers allergy and asthma care (ages 6 months to 18 years). Allergy and asthma study is recruiting. Call 1-866-444-2214 (TTY 1-866-411-1010). Refer to study 05-I-0084.

Typhoid Vaccine Study Recruits

Typhoid fever vaccine study (06-CH-0070) seeks healthy volunteers ages 18-45. For more information call 1-866-444-2214 (TTY 1-866-411-1010). Compensation is provided.

ADHD Genetics Study Needs Volunteers

Take part in an NIH study seeking to identify the genes that contribute to attention deficit hyperactivity disorder. For more information call 1-866-444-2214 (TTY 1-866-411-1010). Refer to study 00-HG-0085.



Holding NCI's Vision Award are Dr. Linda Pickle and Dr. David Stinchcomb.

NCI Receives 2006 Vision Award

The National Cancer Institute has won the 2006 Vision Award for its ongoing Geographical Information System (GIS) Database Development program, innovative spatial data analysis, development of geovisualization tools and communication of georeferenced statistics.

The award is presented by the Environmental Systems Research Institute to the organization that has gone beyond the traditional use of GIS within a health or human services organization. It was accepted on behalf of NCI by Dr. David Stinchcomb, a geographer in the Surveillance Research Program. ESRI designs and develops GIS technology.

"We are deeply honored to receive this award," said Dr. Linda Pickle, senior mathematical statistician and coordinator of geographic research in the Statistical Research and Applications Branch.

"NCI has long recognized that cancer rates vary geographically, ever since the first county-level cancer atlas was published in 1975," she explained. "As tools for spatial analyses have become more widely available, such as for cluster identification and spatial statistical modeling, we have incorporated them into our standard analytic practices. Place is important for cancer studies because of geographic differences in environmental exposures, cultural attitudes toward risky behaviors and preventive health care, local public health policies, availability of services by socioeconomic level and the means by which residents obtain health information. Because of this, GIS is now a primary tool for NCI staff."

'Polar Bears' Brave Cold, Can Now Earn 'Bike Bucks'

On Jan. 26—a day when morning temperatures dipped near zero—17 NIH'ers donned warm gear and participated in the NIH Bicycle Commuter Club's Polar Bear event to emphasize their dedication to bike commuting. The club also has adopted a new incentive to attract more bike commuters—the chance to earn "bike bucks."

Participants in the Jan. 26 event warmed up and shared stories at a donut-and-coffee reception sponsored by the club in front of the Natcher Bldg. between 7 and 9:30 a.m.

NCI's Dave Becker, who rode a one-way trip of 16 miles, won the prize for longest commute. He stopped on the main campus for some fuel before completing the last leg of his journey, traveling on to his office at Executive Blvd. His trip usually takes about 75 minutes. Distances traveled by bike commuters at the event ranged from a 3-mile daily round trip to Becker's 32-mile circuit. The average daily round-trip distance traveled by attendees was 12.2 miles.

NIHBCC members have a new reason to know how many miles they ride to and from work. In January the club launched its pilot Bike Bucks program, which rewards bicyclists for the miles they travel on their bikes instead of in motorized vehicles. Just as those who take advantage of the federal Transshare program get subsidized commutes, bike commuters now have a fresh incentive to pedal.

Modeled on community service rewards programs in Ithaca, N.Y., and Philadelphia, the NIH Bike Bucks program requires participants to register the distance between their home and workplace and keep a log of the miles they amass commuting. Participants earn 5 bike bucks for every 100 miles of bike commuting and may spend their bucks at Proteus Bicycles and the NIH Fitness Center.

NIHBCC is currently seeking recognition and spending agreements with other NIH vendors to begin when the pilot program concludes in the spring.—**Jenny Haliski**



Top:

Participants in the NIH Bicycle Commuter Club's polar bear event include (from l) Ehud Goldin (NHGRI), Revell Phillips (NIGMS), Angela Atwood-Moore (NICHD), Marc Gwadz (NLM), Lisa Vasquez (NCI) and Pavel Butylin (NICHD). Morning temperatures dipped near the zero mark that day, but cyclists rode to work to emphasize their dedication to alternative means of commuting.

Middle:

Aliza Krichevsky, a reporter for the University of Maryland Capital News Service who produced a story featuring the NIH Bike Bucks program, interviews Dr. Daniel Hommer, chief of NIAAA's brain electrophysiology and imaging section.

Bottom:

Adam Thomas of NIMH commutes to work.

PHOTOS: MICHAEL SPENCER